

**UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION**

ENTROPIC COMMUNICATIONS, LLC,

Plaintiff

v.

CHARTER COMMUNICATIONS, INC.,

Defendant.

Civil Action No. 2:22-cv-00125-JRG

**JURY TRIAL DEMANDED**

[REDACTED]

**CHARTER'S MOTION FOR SUMMARY JUDGMENT OF  
INVALIDITY OF THE ASSERTED CLAIMS OF THE '362 PATENT**

## TABLE OF CONTENTS

I.	STATEMENT OF ISSUES TO BE DECIDED BY THE COURT .....	1
II.	STATEMENT OF UNDISPUTED MATERIAL FACTS .....	1
	A.    Undisputed Material Facts Relating Primarily To Lack Of Adequate Written Description And/Or Enablement .....	2
	B.    Undisputed Material Facts Relating Primarily To Anticipation/Obviousness .....	5
III.	LEGAL STANDARD.....	8
IV.	ARGUMENT.....	9
	A.    Claims 11 And 12 Of The '362 Patent Are Invalid Under 35 U.S.C. § 112.....	9
	1.    Legal Standard .....	9
	a.    The “Full Scope” Rule .....	9
	b.    Written Description Must Come From The “Four Corners Of The Specification.”.....	12
	c.    Enablement Requires Disclosure Of The Novel Aspects Of The Invention. ....	13
	2.    Claims 11 And 12 Of The '362 Patent Lack Written Description And Are Not Enabled.....	14
	a.    The described invention is the use of analog circuitry to reduce the bandwidth of an incoming RF signal <i>before</i> being processed by analog-to-digital converters. ....	14
	b.    The claims as construed cover methods in which the incoming analog signal is immediately digitized without any prior reduction in bandwidth, <i>contrary</i> to the described invention. ....	17
	B.    Claims 11 And 12 Of The '362 Patent Are Invalid Under 35 U.S.C. §§ 102 And 103 In View Of Zhang .....	21
	1.    [11pre]: “A method comprising:” .....	22
	2.    [11a]: “in a wideband receiver system:” .....	22
	3.    [11a1]: “downconverting, by a mixer module of said wideband receiver system, a plurality of frequencies that comprises a plurality of desired television channels and a plurality of undesired television channels;” .....	22
	4.    [11a2]: “digitizing, by a wideband analog-to-digital converter (ADC) module of said wideband receiver system, said plurality of frequencies comprising said plurality of	

desired television channels and said plurality of undesired television channels;” .....	25
5. [11a3]: “selecting, by digital circuitry of said wideband receiver system, said plurality of desired television channels from said digitized plurality of frequencies; and” .....	25
6. [11a4]: “outputting, by said digital circuitry of said wideband receiver system, said selected plurality of television channels to a demodulator as a digital datastream.” .....	27
7. [12]: “The method of claim 11, comprising outputting, by said digital circuitry of said wideband receiver system, said digital datastream via a serial interface.” .....	28
V. CONCLUSION.....	30

## **TABLE OF AUTHORITIES**

### **Cases**

<i>American Hoist &amp; Derrick Co. v. Sowa &amp; Sons, Inc.</i> , 725 F. 2d 1350 (Fed. Cir. 1984).....	21
<i>Anderson v. Liberty Lobby, Inc.</i> , 477 U.S. 242 (1986).....	8
<i>Ariad Pharms, Inc. v. Eli Lilly &amp; Co.</i> , 598 F.3d 1336 (Fed. Cir 2010).....	9, 13, 20
<i>Atl. Research Mktg. Sys., Inc. v. Troy</i> , 659 F.3d 1345 (Fed. Cir. 2011).....	13
<i>Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc.</i> , 246 F.3d 1368 (Fed. Cir. 2001).....	29
<i>Celotex Corp. v. Catrett</i> , 477 U.S. 317 (1986).....	8
<i>Centocor Ortho Biotech, Inc. v. Abbott Laboratories</i> , 636 F.3d 1341 (Fed. Cir. 2011).....	12
<i>Consolidated Elec. Light Co. v. McKeesport Light Co.</i> , 159 U.S. 465 (1895).....	11
<i>Freescale Semiconductor, Inc. v. Promos Techs., Inc.</i> , 561 F. Supp. 2d 732 (E.D. Tex. 2008).....	28
<i>FS.com Inc. v. Int'l Trade Comm'n</i> , 65 F.4th 1373 (Fed. Cir. 2023) .....	28
<i>Genentech, Inc. v. Novo Nordisk A/S</i> , 108 F.3d 1361 (Fed. Cir. 1997).....	14, 20
<i>Gentry Gallery, Inc. v. Berkline Corp.</i> , 134 F.3d 1473 (Fed. Cir. 1998).....	12
<i>Grant v. Raymond</i> , 31 U.S. 218 (1832).....	10
<i>ICU Medical, Inc. v. Alaris Medical Systems, Inc.</i> , 558 F.3d 1368 (Fed. Cir. 2009).....	10, 12, 13, 20

<i>In re Goodman</i> , 11 F.3d 1046 (Fed. Cir. 1993).....	11
<i>Juno Therapeutics, Inc v. Kite Pharma, Inc.</i> , 10 F.4th 1330 (Fed. Cir. 2021) .....	11
<i>Liebel-Flarsheim Co. v. Medrad, Inc.</i> , 481 F.3d 1371 (Fed. Cir. 2007).....	18
<i>LizardTech, Inc. v. Earth Res. Mapping, Inc.</i> , 424 F.3d 1336 (Fed. Cir. 2005).....	10, 11
<i>Lockwood v. Am. Airlines, Inc.</i> , 107 F.3d 1565 (Fed. Cir. 1997).....	13, 20
<i>Martek Biosciences Corp. v. Nutrinova, Inc.</i> , 579 F.3d 1363 (Fed. Cir. 2009).....	9
<i>Matsushita Elec. Indus. Co. v. Zenith Radio Corp.</i> , 475 U.S. 574 (1986).....	8, 9
<i>Microsoft Corp. v. i4i Ltd. Partnership</i> , 564 U.S. 91 (2011).....	21
<i>Nat'l Recovery Techs., Inc. v. Magnetic Separation Sys., Inc.</i> , 166 F.3d 1190 (Fed. Cir. 1999).....	11, 14
<i>Novartis Pharm. Corp. v. Accord Healthcare, Inc.</i> , 38 F.4th 1013 (Fed. Cir. 2022) .....	13, 20
<i>O'Reilly v. Morse</i> , 56 U.S. 62 (1853).....	10, 11
<i>Qualcomm Inc. v. Apple Inc.</i> , 24 F.4th 1367, 1376 (Fed. Cir. 2022) .....	29
<i>Rivera v. Int'l Trade Comm'n</i> , 857 F.3d 1315 (Fed. Cir. 2017).....	10
<i>SIBIA Neurosciences, Inc. v. Cadus Pharmaceutical Corp.</i> , 225 F.3d 1349 (Fed. Cir. 2000).....	22
<i>Sitrick v. Dreamworks, LLC</i> , 516 F.3d 993 (Fed. Cir. 2008).....	13

<i>Toshiba Corp., v. Imation Corp.,</i> 681 F.3d 1358 (Fed. Cir. 2012).....	8
<i>Transocean Offshore Deepwater Drilling, Inc. v. Maersk Contractors USA, Inc.,</i> 617 F.3d 1296 (Fed. Cir. 2010).....	14
<i>Tronzo v. Biomet, Inc.,</i> 156 F.3d 1154 (Fed. Cir. 1998).....	10
<i>Uber Techs., Inc. v. X One, Inc.,</i> 957 F.3d 1334 (Fed. Cir. 2020).....	30
<i>Univ. of Rochester v. G.D. Searle &amp; Co., Inc.,</i> 358 F.3d 916 (Fed. Cir. 2004).....	12
<i>Vasudevan Software, Inc. v. MicroStrategy, Inc.,</i> 782 F.3d 671 (Fed. Cir. 2015).....	13
<i>Wyeth v. Abbott Labs.,</i> 2012 U.S. Dist. LEXIS 6869 (D.N.J. Jan. 19, 2012).....	9

## **Rules**

Rule 56.....	8
--------------	---

## **Treatises**

CHISUM ON PATENTS § 7.01 (2010).....	11
--------------------------------------	----

## I. STATEMENT OF ISSUES TO BE DECIDED BY THE COURT<sup>1</sup>

1. Whether claims 11 and 12 of United States Patent No. 9,210,362 (the “‘362 patent”) are invalid for lack of adequate written description and/or enablement under 35 U.S.C. § 112?

2. Whether claim 11 of the ‘362 patent is invalid due to anticipation and/or obviousness under 35 U.S.C. §§ 102 or 103 in view of U.S. Patent No. 6,704,372 (“Zhang”)?

3. Whether claim 12 of the ‘362 patent is invalid due to anticipation and/or obviousness under 35 U.S.C. §§ 102 or 103 in view of Zhang and the applicant-admitted prior art (*see* ‘362 patent at 6:55–58) as exemplified in U.S. Patent No. 7,265,792 (“Favrat”)?

## II. STATEMENT OF UNDISPUTED MATERIAL FACTS

1. Claims 11 and 12 of the ‘362 patent recite:

Claim	Claim Language
<b>11.pre</b>	A method comprising:
<b>11.a</b>	in a wideband receiver system:
<b>11.a1</b>	downconverting, by a mixer module of said wideband receiver system, a plurality of frequencies that comprises a plurality of desired television channels and a plurality of undesired television channels;
<b>11.a2</b>	digitizing, by a wideband analog-to-digital converter (ADC) module of said wideband receiver system, said plurality of frequencies comprising said plurality of desired television channels and said plurality of undesired television channels;
<b>11.a3</b>	selecting, by digital circuitry of said wideband receiver system, said plurality of desired television channels from said digitized plurality of frequencies; and
<b>11.a4</b>	outputting, by said digital circuitry of said wideband receiver system, said selected plurality of television channels to a demodulator as a digital datastream.
<b>12</b>	The method of claim 11, further comprising outputting, by said digital circuitry of said wideband receiver system, said digital datastream via a serial interface.

2. The ‘362 patent claims priority to Provisional Application No. 61/170,526 (the “Priority Application”). Ex. A. The Priority Application was filed on April 17, 2009. *Id.*

---

<sup>1</sup> Emphasis is added herein, unless specified otherwise.

**A. Undisputed Material Facts Relating Primarily To Lack Of Adequate Written Description And/Or Enablement**

3. The title of the '362 patent is "Wideband Tuner Architecture." Ex. A.<sup>2</sup>

4. According to the '362 specification, prior art wideband tuners required expensive analog-to-digital converters ("ADCs") and other digital circuitry because of the wide bandwidth of the signal that had to be digitized. *Id.* at 2:20–23.

5. The alleged invention described in the '362 patent reduces the bandwidth of the signal to be digitized so that less expensive ADCs and other downstream digital circuitry can be used. *Id.* at 2:20–27, 5:13–19, Fig. 2.

6. Figure 2 depicts a wideband receiver that purportedly solves the problem of the prior art, such that expensive ADCs and other downstream digital circuitry is not required.

7. All disclosed embodiments operate similarly to Fig. 2 in all relevant respects, as confirmed by inventors Madhukar Reddy, Timothy Gallagher, and [REDACTED]. Ex. B at 47:9–49:10; Ex. C at 48:23–49:9; [REDACTED] 200:8–16; *see also* Ex. A at Fig. 2, Fig. 4, Fig. 6; Ex. E at ¶¶ 473–478; *see also* Ex. F.

8. ADCs 218 and 228 in Fig. 2 are analog-to-digital converters that take analog inputs from a "radio front end 210" and provide digital outputs to a "digital front end 230." Ex. A at 5:13, 4:18–19.

9. The incoming "RF input signal" or "RF signal" is described as being received by the radio front end. *Id.* at 1:48–50, 4:27–28, Fig. 2. The parties agree that this RF signal is an analog signal. Dkt. 97 at 23; [REDACTED]

---

<sup>2</sup> "Ex." refers to Exhibits to the Declaration of Elizabeth Long In Support Of Charter's Motion For Summary Judgment Of Invalidity Of The Asserted Claims Of The '362 Patent, filed herewith.

10. The radio front end captures a “swath” of channels from the RF signal having a bandwidth designated BW<sub>1</sub>. This swath includes “desired” channels and “undesired” channels. Ex. A at 1:27–31, 1:67–2:2, 4:19–22.

11. Fig. 2 depicts four desired and six undesired channels in the swath. *Id.*

12. The example for BW<sub>1</sub> in Fig. 2 is 80 MHz, but the specification provides that it can be as wide as “800 MHz or higher.” *Id.* at 2:7–20.

13. These examples of “wideband” swaths of channels would allegedly require the expensive ADCs to digitize, if not for the alleged invention of the ’362 patent. *Id.* at 2:20–23.

14. The ’362 patent only describes embodiments that reduce the bandwidth of the analog swath of channels provided to the ADCs by downconverting them and transforming them into “in-phase” and “quadrature” signals, or “I” and “Q” signals for short. *Id.* at 4:40–5:12.

15. The analog signal having bandwidth BW<sub>1</sub> is depicted in Fig. 2 as being provided to analog mixers 211 and 221. *Id.* at 4:37–39.

16. Mixers 221 and 221 are part of a “complex mixer module for down-shifting the multiple RF channels and transforming them to an in-phase signal and a quadrature signal in the baseband or low intermediate frequency (IF) band.” *Id.* at 2:45–49, 4:40–53.

17. The system described in the ’362 patent includes a wideband analog-to-digital converter module that digitizes the in-phase and quadrature signals. *Id.* at 2:49–51. This “analog-to-digital converter module” is depicted as ADCs 218 and 228 in Fig. 2, which also depicts the I and Q signals supplied to the ADCs. *Id.* at Fig. 2.

18. There is no description in the ’362 patent of an embodiment that does not convert analog I and Q signals into digital I and Q signals. Ex. E at ¶¶ 476–478 [REDACTED].

19. The '362 patent provides that the analog signal supplied to the ADCs is "one half of the RF signal bandwidth  $BW_1$  thanks to the complex down-mixer architecture" Ex. A at 5:15–19. The phrase "thanks to the complex down-mixer architecture" means that the reduction in bandwidth is due to, or is a direct result of the functions performed by, the complex down-mixer architecture 211/221.

20. The reduction in bandwidth from  $BW_1$  to half-of- $BW_1$  (or " $BW_1/2$ ") is depicted in Fig. 2. *Id.* at Fig. 2.

21. The reduction in bandwidth from  $BW_1$  to  $BW_1/2$  is accomplished by the analog downconversion and transformation into analog I and Q signals performed at least in part by the analog mixers in the radio front end of the described embodiments. *Id.* at 4:64–5:12.

22. It is the reduction in bandwidth from  $BW_1$  to  $BW_1/2$  that allegedly allows less expensive analog-to-digital converters to be used as compared to prior art systems that did not reduce the bandwidth of the analog input to the ADCs. *Id.* at 2:2–23; Ex. E at ¶¶ 361–65.

23. The output from the ADCs is a digital form of the analog I and Q signals, called "digital signal I" and "digital signal Q." Ex. A at 5:28–31.

24. These digital I and Q signals are supplied to a "bank of N complex mixers 250" in the "digital front end" as shown in Figure 2. *Id.* at Fig. 2.

25. Each of the "N complex mixers 250" receives the digital I and Q signals "to extract a different one of the desired channels and frequency-shift[] the extracted signals to the baseband frequency." *Id.* at 5:49–52.

26. The digital mixers 250 are described as operating only on digital I and Q signals and as frequency-shifting only desired channels. There is no description of digital mixers operating on anything other than digital I and Q signals or frequency-shifting undesired channels.

27. [REDACTED]

[REDACTED]

[REDACTED]

28. [REDACTED]

[REDACTED],

[REDACTED]

**B. Undisputed Material Facts Relating Primarily To Anticipation/Obviousness**

29. [REDACTED]

[REDACTED]

30. Zhang describes “a wide-band receiver.” Ex. I at 7:4–6, 6:50–51; *see also id.* at Fig. 8 (“Wide Band RF Tuner”).

31. Zhang pertains to “television channels.” *Id.* at 3:9–14.

32. Zhang discloses that “the multi-channel analog RF signal is shown to be between 540–750 MHz.” *Id.* at 6:7–11. This has a bandwidth of 210 MHz (*i.e.*, the range from 540 to 750).

33. One example of a “wideband” frequency range in the ’362 patent is 80 MHz containing 10 television channels. Ex. A at 2:7–23.

34. Zhang describes a “frequency block **down-converter** 210 [that] receives one or more multi-channel analog RF signals which can be sourced by a variety of systems such as satellite systems, terrestrial TV systems, cable systems, etc.” Ex. I at 3:10–14.

35. [REDACTED]

[REDACTED]

36. Zhang discloses that “the multi-channel analog RF signal is multiplied by a reference signal to a lower frequency band.” Ex. I at 3:34–36.

37. A POSITA would refer to a component that multiplies two signals together as a “mixer.” Ex. E at ¶¶ 386–93.

38. The ’362 patent provides examples of “mixers” that multiply signals together using “multipliers.” Ex. A at 6:7–15, 8:17–27, 9:17–21.

39. Zhang labels the channels in the RF signal as  $C_1$  to  $C_n$ , where  $n$  is the total number of channels in the RF signal. Ex. I at 3:60–4:32.

40. Zhang labels a subgroup of channels  $C_1$  to  $C_n$  as “selected channels”  $D_1$  to  $D_m$ , where  $m$  is the number of selected channels. *Id.*

41. The selected channels  $D_1$  to  $D_m$  are outputted to demodulators. Ex. I at 1:24–45, 2:10–17, 4:12–13; 5:51–67, Fig. 2. The unselected channels are not outputted to demodulators. *Id.*

42. Zhang provides that “the digital selector 240 renders it much faster than traditional analog channel switching through RF tuners . . . because ***only the selected channels are later demodulated*** unlike the systems using RF tuners which demodulate all of the RF channels.” *Id.* at 3:66–4:9. Zhang also states that “[e]mbodiments of the present invention are not only faster but they dissipate less heat because fewer resources are required when demodulating only the selected RF channels.” *Id.* at 4:9–12. Zhang also states that “Because demodulator 200 requires only one single-stage frequency-block down-converter, instead of many RF tuners as in the prior art, the cost of the overall system is reduced.” *Id.* at 3:50–54.

43. The benefits described in Zhang of saving costs and improving speed are also described in the ’362 patent. Ex. A at 2:24–27, 6:58–64; 9:8–10, 10:25–28.

44. Zhang discloses digitizing the “multi-channel analog RF signal” using an “ADC (analog-to-digital converter) 220.” Ex. I at Fig. 2, 3:55–59; 3:60–4:4.

45. Zhang describes a “Digital Channel Demux,” which is shorthand for demultiplexer, and an “n x m Selector” as “digital” circuitry that performs the selection of channels  $D_1$  to  $D_m$  as shown for example in Fig. 2. *Id.* at 3:60–4:9, 4:33–36, 4:65–67.

46. Claim 11 does not require processing “hundreds” of television channels. ■■■

47. ■■■

48. Zhang provides an example bandwidth of 210 MHz, which is greater than the 80 MHz example of wideband in the '362 patent. *Compare* Ex. I at 6:1–17, *with* Ex. A at 2:7–23.

49. Figure 2 of Zhang depicts, via lines labeled  $D_1$  to  $D_m$ , outputting the “m selected RF channels … into respective demodulators 250(1), 250(2), … 250(m).” Ex. I at 4:13–26.

50. Zhang describes channels as “data streams.” *Id.* at 3:20–30.

51. Zhang discloses that the RF channels selected by digital selector 240 are digital. *Id.*

52. The '362 patent provides that “The reduced sampling rate of the N desired baseband channels will be sent as a serial or parallel digital data stream to a demodulator ***using a serial or parallel data interface according to commonly known methods[.]***” Ex. A at 6:55–58.

53. Serial and parallel interfaces were commonly known ways of outputting digital datastreams at the time of the '362 patent. Ex. E at ¶414; ■■■

54. Figure 2 of Favrat discloses a signal output circuit 540 that includes serializer 541 and serializer 542 “so that the video signals from the signal output circuit are provided as ***serial digital interfaces.***” Ex. J at 8:3–6, Fig. 2.

55. Favrat describes “a signal **output** circuit 440 includes a serializer 442 for converting the processed digital IF signal from the DSP circuit into **a serial digital data stream.**” *Id.* at 7:60–62.

56. Favrat describes that “[t]he serial digital data on output terminal 506 can be coupled to a digital demodulator and a decoder for demodulating and decoding the digital television signals.” *Id.* at 8:17–19.

57. In Favrat, when the output is digital, it employs a serial interface to transmit the digital datastream. Ex. E at ¶ 421.

58. Using a serial interface to output a digital datastream was one of a finite number of ways to output a digital datastream at the time of the ’362 patent’s priority date. *Id.* at ¶ 414.

59. The serial interface for outputting a serial digital data stream to a demodulator described in Favrat was understood by a POSITA as one of the “commonly known methods” of using a serial data interface described in the ’362 patent. Ex. A at 6:55–58; Ex. E ¶¶ 412–424.

### III. LEGAL STANDARD

“Summary judgment is appropriate when, drawing all justifiable inferences in the non-movant’s favor, there exists no genuine issue of material fact and the movant is entitled to judgment as a matter of law.” *Toshiba Corp., v. Imation Corp.*, 681 F.3d 1358, 1361 (Fed. Cir. 2012) (citing Rule 56 and *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255 (1986)). When the non-movant “fails to make a showing sufficient to establish the existence of an element essential to that party’s case, and on which that party will bear the burden of proof at trial,” the moving party is entitled to summary judgment. *Celotex Corp. v. Catrett*, 477 U.S. 317, 322 (1986). In order to avoid summary judgment, the party opposing the motion must come forward with competent summary judgment evidence of the existence of a genuine fact issue. *See Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 585–86 (1986); *Anderson*, 477 U.S. at 257. In doing so,

the nonmoving party “must do more than simply show that there is some metaphysical doubt as to the material facts.” *Matsushita*, 475 U.S. at 586.

## IV. ARGUMENT

### A. Claims 11 And 12 Of The '362 Patent Are Invalid Under 35 U.S.C. § 112.

#### 1. Legal Standard

##### a. The “Full Scope” Rule

Section 112’s requirement that a specification must provide written description and enablement of the “full scope” of the claims is of critical importance here, because Entropic’s case is built upon a complete fiction about what was actually invented. The purported invention that Entropic attributes to the ’362 patent is not described in the patent at all, but rather something the claims have been construed as being broad enough, at their far edges, to cover.<sup>3</sup> This is the very type of patentee overreach that the full scope requirement was intended to protect against.

Adequate written description requires the specification to demonstrate that the inventors themselves were in possession of *the full scope* of the claimed invention at the time of their application. *See Ariad Pharms, Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir 2010) (en banc); *Wyeth v. Abbott Labs.*, 2012 U.S. Dist. LEXIS 6869 (D.N.J. Jan. 19, 2012) (“[T]he specification contains no data, examples or other disclosures sufficient to demonstrate that the inventors were in possession of the *full scope* of their invention.”). Enablement further requires that the specification “must teach those skilled in the art how to make and use *the full scope* of the claimed invention without undue experimentation.” *See Martek Biosciences Corp. v. Nutrinova, Inc.*, 579 F.3d 1363, 1378 (Fed. Cir. 2009).

---

<sup>3</sup> Entropic alleges that the ’362 patent is the seminal patent for analog-to-digital conversion of an entire incoming analog signal “as is,” without any prior processing. As discussed below, this is nowhere disclosed in the ’362 patent. Rather, Entropic relies on the fact that the claims have been construed to be broad enough to cover this.

Section 112 is not satisfied merely by a showing that the specification describes and enables specific embodiments covered by the claims, which is all that Entropic’s expert does in his report. Rather, the “full scope” requirement necessitates more—invalidity will obtain if the claims are so broad as to cover other embodiments that the inventor did not invent (and were not within the inventor’s possession). There are many such examples in the case law. *See, e.g., Rivera v. Int’l Trade Comm’n*, 857 F.3d 1315, 1319 (Fed. Cir. 2017) (affirming ITC conclusion that “the specification did not provide the necessary written description support for the full breadth of the asserted claims, because the specification was entirely focused on a ‘pod adaptor assembly’ or ‘brewing chamber,’ and did not disclose a container that was itself a pod or that contained an integrated filter”); *ICU Medical, Inc. v. Alaris Medical Systems, Inc.*, 558 F.3d 1368, 1378 (Fed. Cir. 2009) (“the specification describes only medical valves with spikes. . . . Based on this disclosure, a person of skill in the art would not understand the inventor of the ‘509 and ‘592 patents to have invented a spikeless medical valve [encompassed by the broader claim].”); *Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 1159 (Fed. Cir. 1998) (finding invalidity because the specification described only a “conical shape” cup for an artificial hip socket, not the generically-shaped cups claimed); *LizardTech, Inc. v. Earth Res. Mapping, Inc.*, 424 F.3d 1336, 1345-46 (Fed. Cir. 2005) (affirming judgment of invalidity where specification described only “one embodiment of the thing claimed” but the claims covered other, generic methods).

The full scope requirement lies at the heart of the patent bargain. According to the Supreme Court, full disclosure “is necessary in order to give the public, after the privilege shall expire, the advantage for which the privilege is allowed, and ***is the foundation of the power to issue the patent.***” *Grant v. Raymond*, 31 U.S. 218, 247 (1832). In *O’Reilly v. Morse*, 56 U.S. 62 (1853), the Supreme Court held that a valid patent claim must be supported by enabling disclosure that is

commensurate with the full scope of the claim. The Court invalidated Samuel Morse's eighth claim for all electro-magnetic means of "making or printing intelligible characters, letters, or signs at any distances" (*id.* at 86) because the claim was too broad—the specification did not teach how to make and use all such means. An inventor is not entitled to a patent unless "he specifies the means he uses in a manner so full and exact, that anyone skilled in the science to which it appertains, can, by using the means he specifies, without any addition to, or subtraction from them, produce precisely the result he describes." *Id.* at 119; *see also Consolidated Elec. Light Co. v. McKeesport Light Co.*, 159 U.S. 465, 474 (1895) (invalidating patent because the specification did not enable one of skill in the art to make an incandescent lamp from any material other than the carbonized paper, which was the only means disclosed).

The Federal Circuit has applied the full scope requirement up to the present day. *See, e.g., Juno Therapeutics, Inc v. Kite Pharma, Inc.*, 10 F.4th 1330, 1337 (Fed. Cir. 2021) ("[T]he written description must lead a person of ordinary skill in the art to understand that the inventors possessed the *entire scope* of the claimed invention."). In *Nat'l Recovery Techs., Inc. v. Magnetic Separation Sys., Inc.*, 166 F.3d 1190, 1196 (Fed. Cir. 1999), the Federal Circuit held that in exchange for a 20-year monopoly, "[t]he specification must teach those skilled in the art 'how to make and how to use the invention *as broadly as it is claimed.*'" *Id.* at 1196 (quoting *In re Goodman*, 11 F.3d 1046, 1050 (Fed. Cir. 1993)). In *LizardTech*, the Court held that a specification cannot support broad claims under § 112 "merely by clearly describing one embodiment of the thing claimed." 424 F.3d at 1346; *see also* Donald S. Chisum, CHISUM ON PATENTS § 7.01, at 7–9 (2010) ("The requirement of adequate disclosure assures that the public receives 'quid pro quo' for the limited monopoly granted to the inventor."). The specification must show that the inventors *actually invented what is claimed* so that the granted patent monopoly is not broader than the

invention. *Univ. of Rochester v. G.D. Searle & Co., Inc.*, 358 F.3d 916, 928 (Fed. Cir. 2004); *see also Centocor Ortho Biotech, Inc. v. Abbott Laboratories*, 636 F.3d 1341, 1353 (Fed. Cir. 2011) (reversing denial of JMOL where patentee’s claims were “beyond the scope of its disclosure” because the “right to exclude cannot ‘overreach the scope of [the patentee’s] contribution to the field of art as described in the patent specification.’”) (internal citation omitted).

In *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1478–80 (Fed. Cir. 1998), the Federal Circuit reversed the district court’s finding of validity. It found the claims to be invalid as a matter of law for lack of written description because they were too broad and covered embodiments that lacked the feature described in the specification as the invention. The court held that the “claims may be no broader than the supplying disclosure, and therefore that a narrow disclosure will limit claim breadth.” *Id.* at 1480; *see also ICU Medical*, 558 F.3d at 1376–79 (finding invalidity because claims lacked a feature of the invention described in the specification); *Sitrick*, 516 F.3d at 999–1001 (“Because the claims are broad enough to cover both movies [the alternative embodiment] and video games [the preferred embodiment], the patents must enable both technologies.”); *Auto. Techs.*, 501 F.3d at 1281 (finding lack of enablement because the claims only enabled mechanical side impact sensors while the full scope of the claims included both electronic sensors and mechanical side impact sensors).

In this case, overbreadth is a fatal flaw for claims 11 and 12 of the ’362 patent, because they cover embodiments of wideband receivers that the inventors did not invent and that, in fact, go against the teachings in the ’362 patent.

**b. Written Description Must Come From The “Four Corners Of The Specification.”**

“The test for the sufficiency of the written description ‘is whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had

possession of the claimed subject matter as of the filing date.”” *Vasudevan Software, Inc. v. MicroStrategy, Inc.*, 782 F.3d 671, 682 (Fed. Cir. 2015) (quoting *Ariad*, 598 F.3d at 1351). This “test requires an objective inquiry into ***the four corners of the specification*** from the perspective of a person of ordinary skill in the art. Based on that inquiry, the specification must describe an invention understandable to that skilled artisan and show that the inventor actually invented the invention claimed.” *Ariad*, 598 F.3d at 1351. The “four corners” aspect of this rule means that extrinsic evidence outside the specification cannot be used to provide written description support. *See Novartis Pharms. Corp. v. Accord Healthcare, Inc.*, 38 F.4th 1013, 1016 (Fed. Cir. 2022) (to satisfy written description, it “is not enough that a claimed invention is ‘an obvious variant of that which is disclosed in the specification’”) (quoting *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997)); *Ariad*, 598 F.3d at 1352 (explaining that “it is the specification itself that must demonstrate possession” and “a description that merely renders the invention obvious does not satisfy the requirement”); *ICU*, 558 F.3d at 1379 (“It is not enough that it would have been obvious to a person of ordinary skill that a preslit trampoline seal could be used without a spike.”).

“While ‘[c]ompliance with the written description requirement is a question of fact,’ this issue is ‘amenable to summary judgment in cases where no reasonable fact finder could return a verdict for the non-moving party.’” *Atl. Research Mktg. Sys., Inc. v. Troy*, 659 F.3d 1345, 1353 (Fed. Cir. 2011) (citation omitted).

**c. Enablement Requires Disclosure Of The Novel Aspects Of The Invention.**

The specification must enable a person of ordinary skill in the art to make and use the claimed invention without undue experimentation. *See Sitrick v. Dreamworks, LLC*, 516 F.3d 993, 999 (Fed. Cir. 2008). ““The scope of the claims must be less than or equal to the scope of the enablement’ to ‘ensure[ ] that the public knowledge is enriched by the patent specification to a

degree at least commensurate with the scope of the claims.”” *Id.* (quoting *Nat'l Recovery Techs., Inc. v. Magnetic Separation Sys., Inc.*, 166 F.3d 1190, 1195–96 (Fed. Cir. 1999)). “It is the specification, not the knowledge of one skilled in the art, that must supply the novel aspects of an invention in order to constitute adequate enablement.” *Genentech, Inc. v. Novo Nordisk A/S*, 108 F.3d 1361, 1366 (Fed. Cir. 1997).

While enablement involves underlying questions of fact, whether a claim satisfies the enablement requirement is ultimately a question of law. *See Transocean Offshore Deepwater Drilling, Inc. v. Maersk Contractors USA, Inc.*, 617 F.3d 1296, 1305 (Fed. Cir. 2010).

## 2. **Claims 11 And 12 Of The '362 Patent Lack Written Description And Are Not Enabled**

There is insufficient written description and/or enablement of the full scope of claims 11 and 12 under 35 U.S.C. § 112.<sup>4</sup>

- a. **The described invention is the use of analog circuitry to reduce the bandwidth of an incoming RF signal before being processed by analog-to-digital converters.**

The title of the '362 patent is “Wideband Tuner Architecture.” SUF ¶ 3. According to the specification, prior art wideband tuners required expensive analog-to-digital converters (“ADCs”) and other digital circuitry because of the wide bandwidth of the signal that had to be digitized. SUF ¶ 4. The purported invention is said to reduce the bandwidth of the signal to be digitized so that less expensive ADCs and other downstream digital circuitry can be used. SUF ¶ 5.

Figure 2, annotated below, depicts a wideband receiver that allegedly solves this problem.

---

<sup>4</sup> Claim 12 depends from claim 11 and further recites that the outputting step is done via a serial interface. SUF ¶ 1. This dependent element does not fix the lack of support for the full scope of claim 11 under § 112. Therefore claim 12 fails § 112 for the same reasons as claim 11.

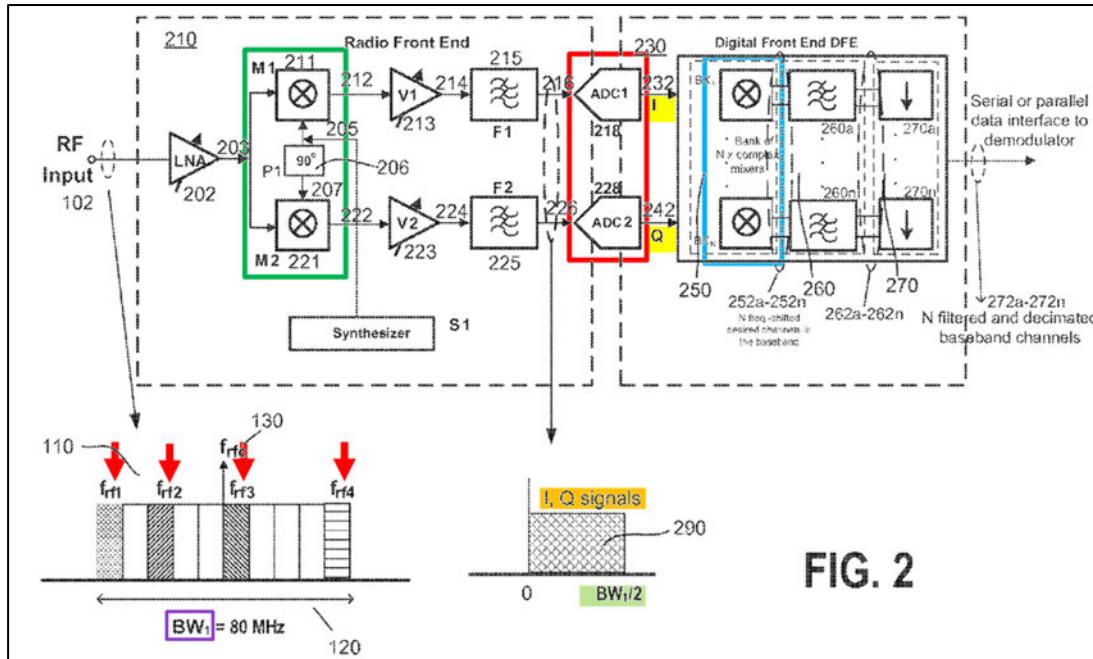


FIG. 2

SUF ¶ 6. The ADCs in question are labeled 218 and 228 in the middle of the figure, which is annotated with a red box. These ADCs sit between a “radio front end 210” on the left and a “digital front end 230” on the right, each of which is indicated by a dashed box in Fig. 2. SUF ¶ 8. The incoming “RF Input” or “RF signal” is received by the radio front end. SUF ¶ 9. The parties agree that this RF signal is an analog signal. *Id.*

In operation, the radio front end captures a “swath” of channels from the RF signal, which includes the “desired” channels (the channels the customer is interested in) and “undesired” channels. SUF ¶ 10. That swath has a bandwidth designated  $BW_1$ . *Id.* Fig. 2 is annotated above to indicate  $BW_1$  in purple, while the four desired channels are indicated with red arrows. SUF ¶ 11. The example for  $BW_1$  in Fig. 2 is 80 MHz, but the specification provides that it can be as wide as “800 MHz or higher.” SUF ¶ 12. These examples of “wideband” swaths of channels would require the expensive ADCs to digitize. SUF ¶ 13. The reduction of this bandwidth before digitizing is the very invention of the ’362 patent.

The way that the '362 patent reduces the bandwidth of the analog swath of channels is by downconverting them and transforming them into “in-phase” and “quadrature” signals, or “I” and “Q” signals for short. SUF ¶ 14. Specifically, the analog signal having bandwidth  $BW_1$  is provided to analog mixers 211 and 221, indicated by a green box in annotated Fig. 2 above. SUF ¶ 15. Together, these mixers constitute a “complex mixer module for *down-shifting* [i.e., *downconverting*] the multiple RF channels and transforming them to *an in-phase signal and a quadrature signal* in the baseband or low intermediate frequency (IF) band.” SUF ¶ 16.

“The system further includes a wideband analog-to-digital converter module that digitizes the in-phase and quadrature signals.” SUF ¶ 17. These are the ADCs 218 and 228 in Fig. 2, which also depicts the I and Q signals supplied to the ADCs (highlighted in orange). *Id.* “[T]hanks to the complex down-mixer architecture” 211/221, the analog signal supplied to the ADCs is “one half of the RF signal bandwidth  $BW_1$ .” SUF ¶ 19. This is also expressly depicted in Fig. 2 (highlighted in green), which shows a signal having a bandwidth “ $BW_1/2$ ” supplied to the ADCs. SUF ¶ 20. That is the reduction in bandwidth that allows the less expensive analog-to-digital converters to be used. SUF ¶ 22. Because it is the analog downconversion and transformation into I and Q signals performed by the analog mixers which achieve that bandwidth reduction, *they are the very invention of the '362 patent.* SUF ¶¶ 21, 5. The specification does not describe analog-to-digital conversion without first reducing the bandwidth, nor does it describe any other way of reducing the bandwidth of the analog signal. SUF ¶ 18.

The output from the ADCs is a digital form of the analog I and Q signals, called “digital signal I” and “digital signal Q.” SUF ¶ 23. These digital I and Q signals (as highlighted in yellow on Fig. 2 above) are supplied to a “bank of N complex mixers 250” (blue above) in the “digital front end,” each of which receives the digital I and Q signals “to extract a different one *of the*

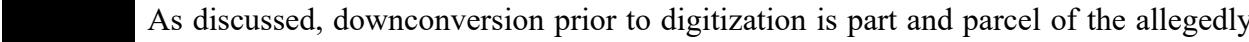
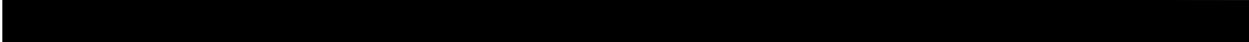
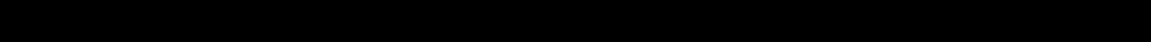
*desired channels* and frequency-shift[] the extracted signals to the baseband frequency.” SUF ¶¶ 24–25. Thus, the digital mixers 250 operate only on digital I and Q signals and frequency-shift only the desired channels. SUF ¶ 26. The digital mixers 250 are never described as operating on anything other than digital I and Q signals or frequency-shifting any of the undesired channels. *Id.*

All disclosed embodiments operate similarly to Fig. 2, as confirmed by inventors Madhukar Reddy, Timothy Gallagher, and [REDACTED]. SUF ¶ 7.

**b. The claims as construed cover methods in which the incoming analog signal is immediately digitized without any prior reduction in bandwidth, contrary to the described invention.**

Claim 11 recites a method with four steps, the first two of which are relevant to this motion: “downconverting, by a mixer module of said wideband receiver system, a plurality of frequencies that comprises a plurality of desired television channels and a plurality of undesired television channels” (the “downconverting step”) and “digitizing, by a wideband analog-to-digital converter (ADC) module of said wideband receiver system, said plurality of frequencies comprising said plurality of desired television channels and said plurality of undesired television channels” (the “analog-to-digital conversion step”). Ex. A at 12:37–53. The Court has construed these two steps such that they can be performed in any order; as construed, the analog-to-digital conversion step can occur before the downconverting step. Dkt. 123 at 52. In other words, no downconverting, no transformation into I and Q signals, no reduction of bandwidth, and no other processing of the incoming analog signal whatsoever needs to be done prior to analog-to-digital conversion in order to infringe claim 11. However, such methods are not described or enabled in the specification, which violates the “full scope” rule of Section 112.

No disclosure of digitizing a raw incoming (non-downconverted, non-bandwidth-reduced) analog signal. Every disclosed embodiment requires, and performs, downconversion of the analog signal **before** analog-to-digital conversion. Every disclosed embodiment includes analog mixers to perform this function, and the specification discloses no embodiments which include only digital mixers. Not only this, but the reduction in bandwidth this analog downconversion helps effectuate is described as the invention itself, the solution to the problem of the prior art. SUF ¶ 5.



As discussed, downconversion prior to digitization is part and parcel of the allegedly inventive function of reducing the bandwidth of the signal before it reaches the ADC. There is no description of a method that digitizes the raw incoming analog signal—one that has neither been downconverted nor bandwidth-reduced. Consequently, there is no written description for claims 11 and 12 because they are so broad (as construed by the Court at Entropic's urging) that they cover methods the inventors did not invent—and from which the specification actually teaches away. *See Liebel-Flarsheim Co. v. Medrad, Inc.*, 481 F.3d 1371, 1380 (Fed. Cir. 2007) (“The irony of this situation is that Liebel successfully pressed to have its claims include a jacketless system, but, having won that battle, it then had to show that such a claim was fully enabled, a challenge it could not meet.”).

No disclosure of digitizing any signals other than I and Q signals. The described invention also transforms the analog signal into separate I and Q signals before analog-to-digital conversion occurs. This function, which is also performed by the disclosed (and required) analog mixers, is also part and parcel of the allegedly inventive reduction of the bandwidth before analog-to-digital

conversion. There is no description in the specification of a method for digitizing any signals other than the I and Q signals generated from the received analog signal. Ex. E at ¶ 476.

[REDACTED]

[REDACTED]

As such,

claims 11 and 12 are invalid for failure to satisfy the “full scope” rule of Section 112.

No disclosure of ADCs or digital mixers which process anything other than I and Q signals.

The specification does not disclose any ADCs or digital mixers which process anything other than separate I and Q signals. Thus, even if, contrary to the disclosure, the inventors were entitled to a claim scope which covered only the functions of the ADCs and the digital mixers (and not the analog mixers which generate the I and Q signals), ***that still would not save the claims.*** The disclosed ADCs and digital mixers operate only on I and Q signals. Thus, the claims would still violate the “full scope” requirement because they are broad enough to cover ADCs and digital mixers which do not operate on I and Q signals.

No disclosure of digital mixers that downconvert undesired channels. The downconverting step requires downconverting “a plurality of desired television channels *and a plurality of undesired television channels.*” The only disclosed mixers that downconvert both desired and undesired channels are the analog mixers in the radio front end; the digital mixers in the digital front end downconvert ***only desired channels.*** See *supra* § IV.A.2.a. Because the claims as construed permit the digitization step to occur before the “downconverting, by a mixer module” step, the claims cover a mixer that downconverts ***digitized*** versions of both desired and undesired channels. However, the digital mixers in the specification downconvert only desired channels, and there is no indication that the inventors were in possession of using a digital mixer to downconvert undesired channels. Thus, the claims do not satisfy the written description requirement of § 112.

No disclosure of digitizing the entire incoming analog signal with no pre-processing.

Because the Court has construed claim 11 to be broad enough to cover digitization of the entire incoming analog signal with no analog pre-processing, [REDACTED]

[REDACTED]

However, just because the claims may be broad enough to cover a particular embodiment does **not** mean that that embodiment was actually invented by the inventors. It is undisputed that the specification discloses no embodiments in which the entire incoming analog signal is converted into digital form “as is”—*i.e.*, without first being downconverted and transformed into I and Q signals. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]. *See Novartis*, 38 F.4th at 1016 (“[It] is not enough that a claimed invention is ‘an obvious variant of that which is disclosed in the specification’”) (quoting *Lockwood*, 107 F.3d at 1572); *Ariad*, 598 F.3d at 1352 (explaining that “it is the specification itself that must demonstrate possession” and “a description that merely renders the invention obvious does not satisfy the requirement”); *ICU*, 558 F.3d at 1379 (“It is not enough that it would have been obvious to a person of ordinary skill that a preslit trampoline seal could be used without a spike.”). “It is the specification, not the knowledge of one skilled in the art, that must supply the novel aspects of an invention in order to constitute adequate enablement.” *Genentech*, 108 F.3d at 1366 (Fed. Cir. 1997). As such, claims 11 and 12 are not enabled for their full scope.

For the foregoing reasons, claims 11 and 12 are invalid under Section 112.

**B. Claims 11 And 12 Of The '362 Patent Are Invalid Under 35 U.S.C. §§ 102 And 103 In View Of Zhang**

Zhang is directed to a “method and circuitry for implementing digital multichannel demodulation circuits.” *See id.*, Abstract. Zhang discloses down-converting, digitizing, selecting desired TV channels, and outputting the selected TV channels in a digital datastream, as Dr. Goldberg testified. Ex. E at ¶ 386–94 (down-converting), 395–99 (digitizing), 400–07 (selecting), 408–11 (outputting). [REDACTED]

[REDACTED]

[REDACTED]. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] [REDACTED]

[REDACTED].

Accordingly, it appears to be undisputed that Zhang describes every element of claim 11 and summary judgment of anticipation should be granted.

Because Zhang was not considered by the Patent Office during prosecution of the '362 patent, it carries more weight and renders Charter's burden more easily carried. *See Microsoft Corp. v. i4i Ltd. Partnership*, 564 U.S. 91, 110 (2011) (“[T]he Federal Circuit has recognized throughout its existence . . . that new evidence supporting an invalidity defense may ‘carry more weight’ in an infringement action than evidence previously considered by the PTO . . . .”) (quoting *American Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F. 2d 1350, 1360 (Fed. Cir. 1984) (“When new evidence touching validity of the patent not considered by the PTO is relied on, the tribunal considering it is not faced with having to disagree with the PTO or with deferring to its judgment or with taking its expertise into account. The evidence may, therefore, carry more weight and go

further toward sustaining the attacker's unchanging burden.")); *SIBIA Neurosciences, Inc. v. Cadus Pharmaceutical Corp.*, 225 F.3d 1349, 1355–56 (Fed. Cir. 2000) ("[T]he alleged infringer's burden may be more easily carried because of the additional [evidence].").

1. [11pre]: "A method comprising:"

[REDACTED], Zhang discloses a method. Zhang is directed expressly to "[a] **method** and circuitry for implementing digital multi-channel demodulation circuits." Ex. I Abstract at 1:66–67, 8:53–54. [REDACTED]

2. [11a]: "in a wideband receiver system:"

[REDACTED] Indeed, Zhang describes this element verbatim by referring to "*a wide-band receiver.*" SUF ¶ 30. In one example, Zhang discloses that the received "signal can be sourced by a variety of systems such as satellite systems, terrestrial TV systems, cable systems, etc." SUF ¶ 32. In this specific embodiment, the signal is sourced by a cable system. *Id.* "Accordingly, the multi-channel analog RF signal is shown to be between 540–750MHz." *Id.* Such a signal has a bandwidth of 210MHz (*i.e.*, the range from 540 to 750). *Id.* The term "wideband" in claim 11 provides examples ranging from 80Mhz to 800MHz (SUF ¶¶ 12, 33), which clearly includes the 210MHz bandwidth disclosed in Zhang (SUF ¶ 32). Therefore, Zhang discloses this claim element, [REDACTED]

[REDACTED]. Ex. E at ¶¶ 380–85; SUF ¶ 29.

3. [11a1]: "**downconverting, by a mixer module of said wideband receiver system, a plurality of frequencies that comprises a plurality of desired television channels and a plurality of undesired television channels;**"

[REDACTED] Zhang again uses the claim language itself when it describes a "frequency block **down-converter** 210 [that] receives one or more multi-channel analog RF signals which can be

sourced by a variety of systems such as satellite systems, terrestrial TV systems, cable systems, etc.” SUF ¶ 34.

The Court construed “downconverting” as having its “plain meaning.” Dkt. 123 at 63; *see also* SUF ¶ 35. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] This is precisely what Zhang describes:

***Down converter 210 shifts the multi-channel analog RF signal to a lower frequency band.*** The frequencies are simply downshifted, i.e., the frequency band of each RF channel and the guard bands remain the same relative to each other, but all are translated down by the same frequency.

Ex. I at 3:30–35; *see also* *id.* at 2:3–7, 3:38–39 (“The frequencies are lowered so that subsequent stages can better process the signal.”); SUF ¶ 36.

Zhang further discloses the “mixer module” element of claim 11. For example, Zhang states that “the multi-channel analog RF signal is multiplied by a reference signal to a lower frequency band.” *Id.* at 3:34–36. A POSITA would consider a component that multiplies two signals together to be a “mixer.” SUF ¶ 37. The ’362 patent itself provides in several places that “mixers” multiply signals together using “multipliers.” SUF ¶ 38. Accordingly, Dr. Goldberg explained that Zhang’s description of two signals being multiplied together is understood by a POSITA as being performed by a mixer (SUF ¶ 37), and in any event, Dr. Kramer does not dispute this in his report. SUF ¶ 29.<sup>5</sup>

---

5 [REDACTED]

Zhang further discloses that the received multi-channel RF signal includes both desired and undesired television channels as claimed.<sup>6</sup> Zhang describes selecting one or more digitized RF channels (desired) for subsequent output, and ignoring other channels in the RF signal (undesired). SUF ¶¶ 39–41. In particular, Zhang labels all the channels in the RF signal as C<sub>1</sub> to C<sub>n</sub>, where n is the total number of channels (SUF ¶ 39), and labels a subgroup of these as “selected channels” D<sub>1</sub> to D<sub>m</sub>, where m is the number of selected channels (SUF ¶ 40), which are then outputted to demodulators (SUF ¶ 41). Only the selected channels D<sub>1</sub> to D<sub>m</sub> are outputted for subsequent processing. SUF ¶ 41. Therefore, the “multi-channel analog RF signal” in Zhang includes a plurality of desired televisions channels and a plurality of undesired television channels. *Id.* Again, this is not disputed.

As a result, Zhang provides that “[c]hannel-search capabilities of the digital selector 240 renders it much faster than traditional analog channel switching through RF tuners . . . because only the selected channels are later demodulated unlike the systems using RF tuners which demodulate all of the RF channels.” SUF ¶ 42. Zhang states that “[e]mbodiments of the present invention are not only faster but they dissipate less heat because fewer resources are required when demodulating only the selected RF channels.” *Id.* ***Zhang thus describes the same benefits described in the '362 patent, except it did so many years earlier.*** SUF ¶ 43.

Zhang thus discloses this claim element, [REDACTED].

SUF ¶ 29.

---

<sup>6</sup> Zhang pertains to “television channels” (SUF ¶ 31), [REDACTED] . Ex. E at ¶ 390.

4. [11a2]: “**digitizing, by a wideband analog-to-digital converter (ADC) module of said wideband receiver system, said plurality of frequencies comprising said plurality of desired television channels and said plurality of undesired television channels;**”

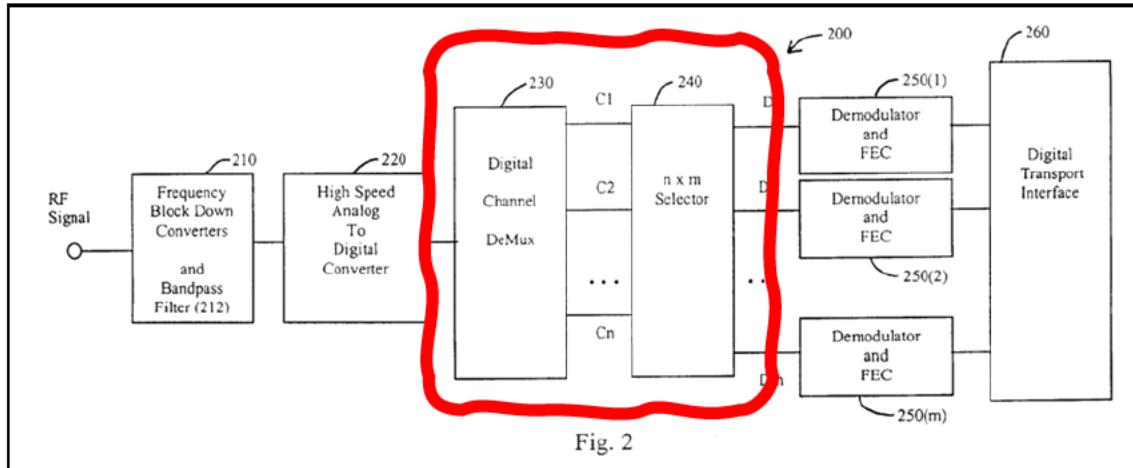
[REDACTED]

[REDACTED] Zhang clearly shows digitizing the “multi-channel analog RF signal,” which as discussed above includes a plurality of desired television channels and a plurality of undesired television channels. Zhang specifically identifies “ADC (analog-to-digital converter) 220” as the way the digitization is done before selecting desired channels (SUF ¶ 44), exactly as recited in claim 11 of the ’362 patent. Zhang’s ADC 220, by it being a “high-speed ADC” having the ability to convert the “entire signal band with n channels” (*id.*), meets the requirement of a “wideband” ADC converter. Therefore, Zhang discloses this claim element. [REDACTED]

5. [11a3]: “**selecting, by digital circuitry of said wideband receiver system, said plurality of desired television channels from said digitized plurality of frequencies; and**”

As discussed above, Zhang describes “selecting” a group of m “selected channels” from among all n channels in the “entire signal band.” Ex. I at 3:55–59. The “selected channels” correspond to the claimed “desired television channels” and the remaining channels that are not selected in Zhang correspond to the claimed “undesired television channels.”

Zhang describes performing this selecting step using “***digital circuitry*** of said wideband receiver system.” Specifically, in the red annotated box in Fig. 2 below, Zhang depicts a “Digital Channel Demux,” which is shorthand for demultiplexer, as well as an “n x m Selector.” SUF ¶ 45.



These components are described in Zhang as “digital” circuitry that selects the desired channels  $D_1$  to  $D_m$  from among the larger group of all received channels  $C_1$  to  $C_n$ . *Id.*

A **digital channel demultiplexer** 230 then demultiplexes the multi-channel digital RF signal into separate digital RF channels  $C_1$  to  $C_n$ . . . . Still referring to FIG. 2, **an  $n \times m$  digital selector** 240 receives the demultiplexed digital RF channels  $C_1$  to  $C_n$  and then **selects one or more of the RF channels  $D_1$  to  $D_m$  from one or more of the digital RF channels  $C_1$  to  $C_n$** . . . . [O]nly the selected channels are later demodulated . . . .

*Id.*<sup>7</sup> Therefore, Zhang discloses this claim element. Ex. E at ¶ 402.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

a [REDACTED]

[REDACTED]

[REDACTED]

<sup>7</sup> While the above passage is sufficient to show that Zhang describes this claim element, Zhang provides even more detail. For example, Zhang discloses a “digital tuner 300,” which can be used to implement digital channel demultiplexer 230. Ex. I at 4:33–36. Zhang goes on to refer to digital tuner 300 as “[d]igital tuner **circuit** 300.” *Id.* at 4:65–67.

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED].

It is undisputed that ten channels fall within the term “wideband” in claim 11, [REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]le  
[REDACTED]. Thus, Zhang has even greater capabilities than the '362 patent's own description of the claimed embodiments.

So it is essentially undisputed that Zhang discloses this element. *See* Ex. E at ¶¶ 400–07.

6. [11a4]: “outputting, by said digital circuitry of said wideband receiver system, said selected plurality of television channels to a demodulator as a digital datastream.”

[REDACTED]  
[REDACTED]. Figure 2 of Zhang depicts outputting, via lines D<sub>1</sub> to D<sub>m</sub>, the “m selected RF channels . . . into respective demodulators 250(1), 250(2), . . . 250(m).” SUF ¶ 49. Zhang uses the very words of the claim when it describes the processed signals as “data streams”:

A given RF channel carries one or more “content” channels, which are *data streams* that are superimposed on that channel's carrier frequency and intended to be accessed or used by subscribers. As used here, one RF channel can carry one or more content channels. Accordingly, *one RF channel can provide a variety of data streams*, some of which are selected by a subscriber, e.g., audio, video, etc. Other data streams might be pre-programmed or selected by a program provider, e.g., conditional access data, etc.

SUF ¶ 50. Zhang further discloses that the RF channels selected by digital selector 240 are digital. SUF ¶ 51. Therefore, the collection of m selected digital channels (D<sub>1</sub> to D<sub>m</sub>) is a digital datastream. Ex. E at ¶ 410.<sup>8</sup>

\* \* \*

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Summary judgment of invalidity should be granted.

7. [12]: “**The method of claim 11, comprising outputting, by said digital circuitry of said wideband receiver system, said digital datastream via a serial interface.**”

The dependent element of claim 12 does not forestall invalidity. Zhang discloses outputting a digital datastream, [REDACTED]

[REDACTED]. Serial and parallel interfaces were commonly known ways of outputting digital datastreams at the time of the '362 patent, as the patent itself acknowledges. SUF ¶¶ 52–53. Accordingly, claim 12 is anticipated by Zhang because the dependent element “outputting a digital datastream via a serial interface” element is a species within a small genus (outputting a digital datastream) that is

---

<sup>8</sup> The claim terms “*a* demodulator” and “*a* digital datastream” refer to one or more demodulators and one or more digital datastreams. The recitation of “*a*” or “*an*” means “one or more.” *See FS.com Inc. v. Int'l Trade Comm'n*, 65 F.4th 1373, 1377 (Fed. Cir. 2023) (“Generally, the terms ‘*a*’ or ‘*an*’ in a patent claim mean ‘one or more,’ unless the patentee evinces a clear intent to limit ‘*a*’ or ‘*an*’ to ‘one.’”); *Freescale Semiconductor, Inc. v. Promos Techs., Inc.*, 561 F. Supp. 2d 732, 749 (E.D. Tex. 2008) (“Federal Circuit precedent establishes that ‘*a*’ or ‘*an*’ ordinarily means ‘one or more.’”).

disclosed in Zhang. *See Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc.*, 246 F.3d 1368, 1380 (Fed. Cir. 2001) (“[T]he disclosure of a small genus may anticipate the species of that genus even if the species are not themselves recited.”).

Even if not anticipated, Zhang plus the knowledge of a POSITA renders claim 12 obvious. Outputting a digital datastream via a serial or parallel interface was an obvious design choice based on conventional interfaces, as the '362 patent itself acknowledges: “the N desired baseband channels will be sent as a serial or parallel digital data stream to a demodulator ***using a serial or parallel data interface according to commonly known methods***, as shown in Fig. 2.” SUF ¶ 52. Favrat is an example of a serial datastream in the context of a wideband receiver similar to the devices in Zhang and the '362 patent. Figure 2 of Favrat discloses a signal output circuit 540 that includes serializer 541 and serializer 542 “so that the video signals from the signal output circuit are provided as ***serial digital interfaces***.” SUF ¶ 54. Both Zhang and the '362 patent describe outputting a digital datastream to a demodulator, and Favrat describes the same thing using a serial interface. SUF ¶ 56. Favrat is just one example, however, as a POSITA would already have been familiar with serial and parallel digital interfaces at the time of the '362 patent, as the specification itself acknowledges. SUF ¶ 59.

[REDACTED]  
[REDACTED]. *See Qualcomm Inc. v. Apple Inc.*, 24 F.4th 1367, 1376 (Fed. Cir. 2022) (“[A] patentee’s admissions about the scope and content of the prior art provide a factual foundation as to what a skilled artisan would have known at the time of invention . . . .”); *see also McCoy v. Heal Sys., LLC*, 850 Fed. Appx. 785, 789 (Fed. Cir. 2021) (“By characterizing certain parts as conventional in the specification, the patentee effectively admits that such things would be known to a POSA.”). Dr. Goldberg cites Favrat as an example of a device featuring a

serial interface, emphasizing that Favrat illustrates this conventional feature. [REDACTED]

[REDACTED]

[REDACTED] However, Favrat employs the same language as in claim 12 when it states that “a signal output circuit 440 includes a serializer 442 for converting the processed digital IF signal from the DSP circuit into ***a serial digital data stream.***” SUF ¶ 55.

[REDACTED]

[REDACTED]. This is irrelevant. In Favrat, when the output is digital, it employs a serial interface to transmit the digital datastream. SUF ¶ 57. Dr. Goldberg explained that using such an interface for the '362 patent's output would have been common knowledge and an obvious design choice, as the specification expressly acknowledges. Thus, a POSITA would have been motivated to implement Favrat's serial interface in Zhang's digital multi-channel demodulator with a reasonable expectation of success. Moreover, there were only two primary interfaces known to a POSITA for outputting a digital datastream to a demodulator—parallel or serial. SUF ¶ 58. Using a serial interface would have been one of a finite number of options of which a POSITA would have been well aware, particularly as the '362 patent admits that serial and parallel interfaces were “conventional.” *See Uber Techs., Inc. v. X One, Inc.*, 957 F.3d 1334, 1339 (Fed. Cir. 2020) (claim is obvious when there is “a finite number of identified, predictable solutions”) (citing *KSR*, 550 U.S. at 421).

Accordingly, claim 12 is rendered obvious by Zhang in view of Favrat and/or the knowledge of a POSITA, and summary judgment of invalidity should be granted.

## V. CONCLUSION

For these reasons, Charter respectfully asks that the Court grant summary judgment in its favor and find that claims 11 and 12 of the '362 patent are invalid.

Dated: September 11, 2023

Respectfully submitted,

/s/Daniel Reisner by permission Elizabeth Long

Deron R. Dacus  
State Bar No. 00790553  
The Dacus Firm, P.C.  
821 ESE Loop 323, Suite 430  
Tyler, TX 75701  
Phone: (903) 705-1117  
Fax: (903) 581-2543  
Email: ddacus@dacusfirm.com

Daniel L. Reisner  
David Benyacar  
Elizabeth Long  
Albert J. Boardman  
Melissa Brown  
Jacob Bass  
ARNOLD & PORTER KAYE SCHOLER LLP  
250 West 55th Street  
New York, New York, 10019-9710  
Telephone: (212) 836-8000  
Email: daniel.reisner@arnoldporter.com  
Email: david.benyacar@arnoldporter.com  
Email: elizabeth.long@arnoldporter.com  
Email: albert.boardman@arnoldporter.com  
Email: melissa.brown@arnoldporter.com  
Email: jacob.bass@arnoldporter.com

Marc A. Cohn  
Amy L. DeWitt  
Paul I. Margulies  
ARNOLD & PORTER KAYE SCHOLER LLP  
601 Massachusetts Avenue NW  
Washington, DC 20001-3743  
Telephone: (202) 942-5000  
Email: marc.cohn@arnoldporter.com  
Email: amy.dewitt@arnoldporter.com  
Email: paul.margulies@arnoldporter.com

*Attorneys for Defendant  
Charter Communications, Inc.*

**CERTIFICATE OF SERVICE**

The undersigned certifies that the foregoing document and all attachments thereto are being filed electronically in compliance with Local Rule CV-5(a). As such, this document is being served September 11, 2023, on all counsel of record, each of whom is deemed to have consented to electronic service. L.R. CV-5(a)(3)(A).

/s/ Elizabeth Long

Elizabeth Long

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]